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NR-GIS Metadata and Data Store
NPS Natural Resource and GIS Programs

National Park Service
U.S. Department of the Interior

NR-GIS Data Store: Metadata Authoring Guidance

This document was adapted from the FGDC Metadata Quick Guide.

Overview

The Natural Resource and GIS Metadata and Data Store application (NR-GIS Data Store) manages and shares natural resource and GIS metadata and data generated by the Natural Resource and Servicewide GIS Programs of the National Park Service. To facilitate data dissemination to the public and throughout the National Park Service, the NR-GIS Data Store application posts non-sensitive information to the NPS GIS Clearinghouse located in NPSFocus. The NR-GIS Data Store is part of the NPS Metadata System and provides two functions: the NR-GIS Metadata Database and the NR-GIS Data Server. The NR-GIS Metadata Database is a repository of and search engine for metadata describing natural resource and GIS data. The NR-GIS Data Server hosts natural resource and GIS data (documented by the metadata in the NR-GIS Metadata Database) for download.

Metadata Authoring Requirements and Recommendations

The NPS Natural Resource and Servicewide GIS Programs require adding NPS-specific elements to metadata records and populating particular elements of the Federal Geographic Data Committee (FGDC) Content Standard for Digital Geospatial Metadata. These elements are defined in the NPS Metadata Profile (http://science.nature.nps.gov/nrdata/docs/npsprofile.cfm) and are required for metadata destined for upload into the NR-GIS Data Store. Existing metadata records can be 'upgraded' for the NR-GIS Data Store by adding these required elements:

- NPS-specific elements: metadata purpose, NPS unit code, data category, data steward (if applicable)
- general FGDC metadata elements: theme keywords (NPS and ISO Categories), place keywords (NPS unit information), cross-reference citation for metadata file, data distribution information, metadata extension information

Details on these NPS and FGDC elements are provided below. Other metadata elements (FGDC, Biological Data Profile, ESRI) may be used in records uploaded to the NR-GIS Data Store, but this document discusses only those elements that are required. Refer to FGDC and other NPS metadata guidance for details on these other elements.

Look for NR-GIS Data Store requirement notation in **red**. For step-by-step instructions and to see example NR-GIS Data Store metadata records, refer to the NR-GIS Data Store Instructions (http://science.nature.nps.gov/nrdata/docs/metahelp/metahelp.cfm).

General Guidelines for Posting Metadata and Data:

- Create metadata for each dataset (GIS layer, database, data file, etc.)
  - Metadata must use the NPS Metadata Profile and should include, at minimum, the elements described below.
  - Step-by-step instructions for creating NR-GIS Data Store metadata are found in the NR-GIS Data Store Instructions (http://science.nature.nps.gov/nrdata/docs/metahelp/metahelp.cfm).
- Check the metadata file for errors by parsing it with the FGDC/USGS Metadata Parser tool

  - The NR-GIS Data Store accepts metadata in XML format only. Other formats are not used. Do not produce HTML, SGML or TXT versions unless these additional formats are desired for a local use.
  - See the Metadata Parsing Guidance document for instructions (http://science.nature.nps.gov/nrdata/docs/metahelp/metahelp.cfm).
- Upload metadata and data, if applicable, to the NR-GIS Data Store
  - Instructions are found in the NR-GIS Data Store Metadata and Data Uploading document (http://science.nature.nps.gov/nrdata/docs/metahelp/metahelp.cfm).
  - Data file size is limited to 25Mb.
  - If both metadata and its associated data are uploaded to the NR-GIS Data Store, the metadata will reside in the NR-GIS Metadata Database and the data will be served from the NR-GIS Data Server. If data are not served elsewhere, data should be uploaded via the NR-GIS Data Store application. This upload process will require associated metadata.
  - Metadata alone may be posted to the NR-GIS Data Store. In this case, if the data documented by the metadata are available on another server, the appropriate metadata elements must be populated to allow the NR-GIS Data Store to link to the data. See details in the Identification_Information and Distribution_Information sections below.
- Auto-posting of non-sensitive records to the NPS GIS Information Clearinghouse
  - The NR-GIS Data Store will automatically post non-sensitive records to the NPS GIS Information Clearinghouse in NPSFocus (http://focus.nps.gov:8100/gis), a node of the National Spatial Data Infrastructure (NSDI) Clearinghouse.

Recommended Metadata Practices:

Note: Refer to the NPS Metadata Profile (http://science.nature.nps.gov/nrdata/docs/npsprofile.cfm) for detailed descriptions of NPS-specific metadata elements.

- Specific step-by-step instructions for creating metadata destined for the NR-GIS Data Store are found in the Instructions (http://science.nature.nps.gov/nrdata/docs/metahelp/metahelp.cfm).
- Streamline metadata authoring by using templates. Templates can be used to add NPS Profile elements to existing metadata files or to create new metadata files. NR-GIS Data Store templates are available from the NR-GIS Data Store Instructions (http://science.nature.nps.gov/nrdata/docs/metahelp/metahelp.cfm)
  - the NPS_Basic template contains the elements required if metadata and data will reside on the NR-GIS Data Store
  - If only the metadata will reside on the NR-GIS Data Store and the data are available on another server, change the value of the <DataSite> tag in the NPS_Basic template
  - the NPS_Basic_MDOnly template contains the elements required if only the metadata will reside on the NR-GIS Data Store and the data are not available on another server
- Prior to uploading metadata to the NR-GIS Data Store, parse metadata files with Metaparser to ensure required elements are included and are populated correctly. See the Metadata Parsing Guidance document for instructions (http://science.nature.nps.gov/nrdata/docs/metahelp/metahelp.cfm).
- Recommended tools include:
  - The NPS Metadata Tools and Editor (http://science.nature.nps.gov/nrgis/tools/editor.cfm) to generate any type of metadata destined for the NR-GIS Data Store, including Biological Data Profile metadata. Metadata Parser can be run from within this application as well.
  - NPS Dataset Catalog (http://science.nature.nps.gov/im/apps/datacat/) to export Dataset Catalog metadata in NPS Profile format as XML.

- For suggestions on authoring Biological Profile Metadata, see the Creating Biological Profile Metadata section at the end of this document and the Bio Profile Guide on the NPS Metadata Tools and Editor site (http://science.nature.nps.gov/nrgis/tools/editor.cfm).
- Geodatabase metadata is stored as XML in the underlying RDBMS and cannot be automatically extracted from an uploaded geodatabase file (*.mdb). For instructions on extracting and posting metadata for geodatabases, see the Posting Geodatabase Metadata section at the end of this document.
- At version 2, the NR-GIS Data Store will accept sensitive metadata and data. Draft guidance on how to determine if data are sensitive and on authoring metadata for sensitive data will be available on the NR-GIS Data Store Instructions (http://science.nature.nps.gov/nrdata/docs/metahelp/metahelp.cfm). Metadata records with a value other than 'None' in the Access_Constraints element are assumed to be sensitive.

NPS_Information Section

The NPS Metadata Tools and Editor application allows editing of NPS_Information section elements for any metadata record. Or, data stewards can rely on the prompts during the record upload process of the NR-GIS Data Store. *In other words, if the NPS_Information section is missing from uploaded metadata records, the upload process will prompt for these values. All other (FGDC) elements discussed below should be populated as recommended in this document.*

Listed below are the minimally required elements in this section. For a full listing of NPS_Information elements, refer to the NPS Metadata Profile (http://science.nature.nps.gov/nrdata/docs/npsprofile.cfm).

Metadata_Purpose (Mandatory)

The Metadata_Purpose (<MetaPurp/>) determines a metadata record's searchability and default display format in the NR-GIS Data Store. The Metadata_Purpose 'OnlineData' equates to a NR-GIS Data Store search type of OnlineData and a default OnlineData display. The 'CSGDM' value indicates a search type and default display of Formal Metadata. A 'DataCat' value denotes a Dataset Catalog search type and default display. The OnlineData value takes precedence in default displays if a record has both OnlineData and CSGDM as Metadata_Purpose values.

Choose at least one Metadata_Purpose value from this list:

- NPS, OnlineData, CSDGM, DataCat, DataStandard, BioProfile, ESRI, Other

For metadata that will be posted to the NR-GIS Data Store, populate the Metadata_Purpose element as follows. Use additional <MetaPurp/> tags to include more than one Metadata_Purpose value. Do not use comma delimited lists.

- NPS (the default Metadata_Purpose when using the NPS Metadata Profile) and, if appropriate, at least one of:
  - OnlineData if associated data exist on any accessible server (the link to the data file should be present in the Identification_Information section Dataset Citation Online_Linkage element or the Distribution_Information section Standard_Order_Process element)
  - CSDGM if the metadata is full or minimal Content Standard for Digital GeoSpatial Metadata (mutually exclusive with DataCat value)
  - DataCat if the metadata originated in the NPS Dataset Catalog desktop application (mutually exclusive with CSDGM value)

- BioProfile if the record includes Biological Data Profile metadata (pending)
- DataStandard if the record documents a GIS or data standard (pending)
- ESRI if the metadata uses only the ESRI Profile (pending)
- Other if the metadata does not fit in any of the other categories

NPS_Unit_Information (Mandatory)

The compound NPS_Unit_Information (<NPS_Unit/>) section determines a metadata record's searchability in the NR-GIS Data Store search engine. The UnitCode (e.g., park code) values link a record to one or more NPS units. When users search on these units, the linked metadata records will display unless they are restricted by security or access constraints.

For each unit to which the record is linked, populate the NPS UnitCode (<UnitCode/>) value and its NPS UnitType (<UnitType/>) value in the NPS Unit Information section. The NPS Metadata Tools and Editor has picklists for these values or use the NPS metadata thesauri (http://science.nature.nps.gov/nrdata/docs/metastds.cfm) as the source of the NPS UnitCode values (on the NPS UnitCode Thesaurus tab).

The NPS UnitType is used to help place files on the NR-GIS Data Server. The NPS UnitType is one of: Park, Office, Network, Region, Program (or free text). UnitType must be populated for each UnitCode used.

Repeat UnitCode and UnitType information by replicating the entire NPS_Unit_Information element. Do not use comma delimited values.

Data_Store_Information (Mandatory)

If data are available on any server accessible to users, the record is considered an 'OnlineData' record (see Metadata_Purpose above). For these records, the compound **Data_Store_Information** element (<DatStore/>) is mandatory.

Data_Category (Mandatory)

The Data_Category (<Category/>) determines searchability of a record in the NR-GIS Data Store. It is used to enhance searching of OnlineData records.

- Use the pick list in the Metadata Tools and Editor or select least one value from the NPS Theme Category list. The NPS metadata thesauri (http://science.nature.nps.gov/nrdata/docs/metastds.cfm) lists these values.
- Add additional Data_Category values by adding additional <Category/> tags. Do not use comma delimited lists.

Data_Site (Mandatory if online data are available anywhere)

- Populate a Data_Site (<DataSite/>) value from the following list:
  - NR-GIS, AKSO, USGS, free text

Data_Steward (Mandatory if online data are posted on the NR-GIS Metadata Database and Data Store)

The Data_Steward (<DSteward/>) is not displayed on the non-secure site of the NR-GIS Data Store. This information is used by NR-GIS Data Store administrators to communicate issues with the data.

- Create a Contact Information element for the steward of the data that is documented by the metadata record. This should be an actual person's name to

facilitate contact by administrators of the NR-GIS Data Store. Using a name rather than a position title necessitates updating the metadata if the original steward changes. This update is considered part of the data stewardship process.

Identification_Information: FGDC Section 1

Citation (1.1)

Originator (8.1)

It is recommended that you indicate the party responsible for the data set. While that is most commonly the organization that developed the data set, in some cases, it is not. For example, if a county planning department hires a contractor to build a street centerline road file, the planning department, not the contractor should be identified as the Originator. The contractor should be fully cited using the Data_Set_Credit (1.11) element, e.g. *'this data set was developed for Pipestone National Monument'.*

Publication_Date (8.2)

The date that the data was published or otherwise made available.
Use this format: YYYYMMDD.

Title (8.4) (Mandatory)

This value is displayed as the data set title in search results and record displays.

- Include as much relevant detail as possible including the NPS unit name(s) e.g. *Yellowstone Aquifer Systems and Recharge Potential from NHD source data, Geographic NAD83, NPS (2003) [aqrgeog3dpdeq]*

Online_Linkage (8.10) (Recommended if online data are available anywhere)

In the NR-GIS Data Store, both the **Online_Linkage** (Citation Information) and **Network_Resource_Name** (6.4.2.2.1.1.1.1) elements are used to provide access to data download locations. The general recommendation for the NR-GIS Data Store is to populate the **Online_Linkage** (Citation Information) element in the data set citation with the top-level application URL for the NR-GIS Data Store or the top-level URL for the server on which the data are posted. If desired, metadata authors may place the full data distribution URL in the **Online_Linkage** element. However, any automated data path processes in the NR-GIS Data Store will not use and/or update the values in this element.

For top-level application URLs in the **Online_Linkage** element, use the following format:

- For non-sensitive data on the NR-GIS Data Store, the top-level application URL is http://science.nature.nps.gov/nrdata.
- If data are served from a different server (USGS, Alaska, etc), use the top-level URL for that server in this element instead.

In the NR-GIS Data Store, the **Network_Resource_Name** element is used to capture the full data distribution path. Any automated data path processes in the NR-GIS Data Store operate only on the **Network_Resource_Name** values. See the detailed instructions for **Network_Resource_Name** in Section 6 below.

Abstract (1.2.1)

Be sure to include:

- general content and features

- data set form (GIS, MSAccess, raster, Dbase, etc.)
- geographic coverage (NPS unit(s), county/forest/etc. names)
- time period of content (begin and end date, single date, continuous, etc.)
- special data characteristics or limitations

Purpose (1.2.2)
A summary of the intentions for developing the dataset.

Time_Period_of_Content (1.3)
The relevant date of the data content. This value is used as the data set date in NR-GIS Data Store search result displays. Use the following format for single dates: YYYYMMDD

> **Currentness_Reference (1.3.1)**
> The context for the Time_Period_of_Content. For example: an orthophotograph may have been compiled and delivered in June (publication date) but flown in February (ground condition).

Progress (1.4.1)
The status of the data set, this field has a fixed domain of: "Complete", "In Work", and "Planned.

Theme_Keyword (1.6.1.1) (Mandatory)
Theme keywords are included as searched Category values by the NR-GIS Data Store search engine when a Category option is selected on the search form. Include broad and specific terms and use keyword thesauri like the NPS Theme Category Name Thesaurus and ISO 19115 Topic Category Thesaurus (see the NPS metadata thesauri spreadsheet at http://science.nature.nps.gov/nrdata/docs/metastds.cfm for these values).

- Use separate keyword elements to capture multiple theme keywords. For example, do not put multiple keywords separated by commas in one keyword element.
- Include at least one NPS Theme Category Name keyword. Enter '*National Park Service Theme Category Thesaurus'* as the theme keyword thesaurus value. If the Category element in the NPS_Information section is not populated prior to uploading to the NR-GIS Data Store, the values in this keyword or keywords will be used to populate the Category value.
- The NPS Theme Category is included in the NPS_Information section, so adding it as a theme keyword may seem duplicative. However, adding a theme keyword for the NPS Theme Category will allow search engines that don't use the NPS_Information section (e.g., GeoSpatial OneStop, NSDI) to discover and display NPS records for specific themes.
- Include at least one ISO Topic Category Name referencing the associated Theme_Keyword_Thesaurus as '*ISO 19115 Topic Category'* (see the NPS metadata thesauri - http://science.nature.nps.gov/nrdata/docs/metastds.cfm)
- Include additional descriptive terms to qualify the Topic Category, if desired
- For more details on the ISO Topic Categories, see the table at the end of this document and the Metadata Quick Guide and NSDI/GOS Metadata Publishing Guidance available from http://fgdc.gov/metadata/education.html
- If relevant, insert an additional theme keyword section identifying I&M Program Monitoring Framework(s) and or vital sign(s) addressed by the data set. Use 'None' as the Theme Keyword Thesaurus value.
- If relevant, insert a theme keyword section for project-, program-, application-, or

system-specific keywords that may help users find and understand the data. Examples include the protocol name for a Natural Resource Database Template database or NPS Research Permits and Reporting System study titles or subjects. Use 'None' as the Theme Keyword Thesaurus value.

Place_Keyword (1.6.2.1) (Mandatory)
Include at least one NPS UnitCode and at least one NPS UnitName as Place Keywords. Use picklists in the Metadata Tools and Editor or the NPS metadata thesauri (http://science.nature.nps.gov/nrdata/docs/metastds.cfm) as the source of these keyword values. Although adding a Place_Keyword for the NPS unit or units seems duplicative, using a Place_Keyword to document the relevant NPS unit(s) for a dataset allows other search engines to discover and display NPS records for a specific NPS unit or units.

Use separate keyword elements to capture multiple place keywords. Do not put multiple keywords separated by commas in one keyword element.

For NPS UnitCode keywords, include '*National Park System Unit Code Thesaurus*' as the Place_Keyword_Thesaurus value. For NPS UnitName keywords, include '*National Park System Unit Name Thesaurus*' as the Place_Keyword Thesaurus value.

If the NPS_Unit_Information element is missing from the NPS_Information section, the NR-GIS Data Store upload process will use the place keyword values to generate the UnitCode information the NPS_Unit_Information element.

Additionally, insert a place keyword sections for geo-political, regional, and/or local references such as:

- city or county name
- state
- state acronym
- regional descriptions and references e.g., Appalachia, Puget Sound, DelMar Peninsula, etc.
- local descriptions e.g., Blackwater Marsh, Simpson Creek Watershed, etc.

Use 'None' as the Place Keyword Thesaurus value.

Access_Constraints (1.7)
For non-sensitive records destined for the NR-GIS Data Store, populate this element with the value 'None' (no quotes) unless the data being documented are sensitive. Metadata records with a value other than 'None' in the Access_Constraints element are assumed to be sensitive.

Use_Constraints (1.8)
Any restrictions on or legal prerequisites for using the data set after access is granted. Common constraints include:

- must read and fully comprehend the metadata prior to data use
- acknowledgement of the Originator when using the data set as a source
- sharing of data products developed using the source data set with the Originator
- data should not be used beyond the limits of the source scale
- the data set is NOT a survey document and should not be utilized as such

Point_of_Contact (1.9) (Mandatory)
This is the individual or organization that is knowledgeable about the data set and should be

contacted with questions. This element becomes the Data Contact in NR-GIS Data Store OnlineData display. If this element is blank, the Distributor_Contact is displayed as the data contact. If Distributor_Contact is blank, the Data Steward from the NPS_Information section is displayed on the secure version of the NR-GIS Data Store.

Browse_Graphic (1.10) (if used, follow recommendations below)
Place the full path to the browse graphic in the **Browse_Graphic_File_Name** element. Example path for park-level metadata on NR-GIS Data Store:

http://nrdata.nps.gov/CODE/CODEDATA/FILENAME.* (i.e., http://nrdata.nps.gov/beol/beoldata/beol_berm.jpg)

Note: The browse graphic filename should have the same root as the data and metadata files whenever possible.

Include the **Browse_Graphic_File_Description** and **Browse_Graphic_File_Type** elements as well or parse errors will occur.

Security_Information (1.12)
The handling restrictions imposed on the data set. The **Security_Classification** (1.12.2) determines if a record can be uploaded to the NR-GIS Data Store. The NR-GIS Data Store accepts only records with Security_Classification values of: None/null, Restricted, Sensitive or Unclassified. In general, only populate this element for sensitive data destined for the NR-GIS Data Store (available at release v2). Refer to the guidance on determining data sensitivity and documenting it with metadata (when available).

Cross_Reference (1.13) for Metadata File (Mandatory if metadata is posted to the NR-GIS Data Store)
The NR-GIS Data Store uses one Cross_Reference element to display a direct circular link to this metadata file in the search results and OnlineData displays. Therefore, if an XML metadata file will be posted to the NR-GIS Data Store, include one and only one cross-reference citation element that references this metadata. The proper format for this citation **Title** element is:

Metadata for <Dataset Title from Dataset Citation (see section 1.1 above)>

Populate the **Online_Linkage** child element of this cross reference citation with the full NR-GIS Data Server URL for the metadata file (e.g., http://nrdata.nps.gov/CODE/CODEdata/<metadatafilename>.xml).

Note: The metadata filename should have the same root as the data file whenever possible.

Of course, a record can have multiple cross-reference citations. Only one should reference the metadata file as noted above.

Cross_Reference (1.13) for More Info in OnlineData View
The NR-GIS Data Store uses one Cross_Reference element to display direct links to a general information link in the OnlineData display. If desired, include a cross-reference citation element that references this general link. The proper format for the citation **Title** element is:

More Info for <Dataset Title from Dataset Citation (see section 1.1 above)>

Populate the **Online_Linkage** child element of this cross reference citation with the full URL for the general information link.

Distribution_Information: FGDC Section 6

Distributor_Contact (6.1) (Recommended if online data are available anywhere)
The individual or organization that distributes the data. In the NR-GIS Data Store, this element is used as the Distribution Contact and will be displayed as the data set contact if the Point_of_Contact element is not populated.

Distribution_Liability (6.3) (Mandatory)
A statement of the liability assumed by the Distributor. A section that may:

- deny liability if the data are incorrect, incomplete, or misused
- limit third party distribution of the data set

For NPS metadata, include the following text in the **Distribution_Liability** element:

The National Park Service shall not be held liable for improper or incorrect use of the data described and/or contained herein. These data and related graphics (i.e. "GIF or JPG" format files) are not legal documents and are not intended to be used as such. The information contained in these data is dynamic and may change over time. The data are not better than the original sources from which they were derived. It is the responsibility of the data user to use the data appropriately and consistent within the limitations of geospatial data in general and these data in particular. The related graphics are intended to aid the data user in acquiring relevant data; it is not appropriate to use the related graphics as data. The National Park Service gives no warranty, expressed or implied, as to the accuracy, reliability, or completeness of these data. It is strongly recommended that these data are directly acquired from an NPS server and not indirectly through other sources which may have changed the data in some way. Although these data have been processed successfully on computer systems at the National Park Service, no warranty expressed or implied is made regarding the utility of the data on other systems for general or scientific purposes, nor shall the act of distribution constitute any such warranty. This disclaimer applies both to individual use of the data and aggregate use with other data.

Standard_Order_Process (6.4) (Mandatory if online data are available anywhere)
This is the primary data distribution link used in the NR-GIS Data Store. When data are uploaded to the NR-GIS Data Store, they are served from its NR-GIS Data Server function. For metadata with associated data posted on any accessible server including the NR-GIS Data Store (i.e., Metadata_Purpose = OnlineData), populate at least one **Standard_Order_Process** element detailing both the **Digital_Transfer_Information.Format_Name** (6.4.2.1.1) and the **Digital_Transfer_Option**.**Network_Address** (6.4.2.2.1.1.1) with a **Network_Resource_Name** (6.4.2.2.1.1.1.1) child element. Any automated data path processes in the NR-GIS Data Store operate only on this **Network_Resource_Name** value.

As repeatable elements, **Standard_Order_Process** and, within it, **Network_Resource_Name** provide users access to data download formats and locations. In the NR-GIS Data Store, the **Network_Resource_Name** element is used to capture the full data distribution path. Use this field to fully represent the data distribution location using complete URLs. In most cases, the URL will be the direct download URL for the NR-GIS Data Server or a similar server, but other data may be distributed as map services or ArcIMS features. Use the following style guidance for populating **Network_Resource_Name**:

- direct download URLs that start with either ftp:// or http:// and point to filenames with .zip, .tgz, .tar, .gz, .dxf, or .e00 extensions

- For non-sensitive data on the NR-GIS Data Server, the server name component of the URL is http://nrdata.nps.gov
- An example of a full data distribution URL for the NR-GIS Data Server is: http://nrdata.nps.gov/CODE/CODEDATA/FILENAME.* (i.e., http://nrdata.nps.gov/BEOL/BEOLDATA/beol_berm.zip)
- If data are served from different server (USGS, Alaska, etc), use the full URL for that server in this element.
- For the NR-GIS Data store, data file size is limited to 25Mb.

If known, include **Format_Name** (6.4.2.1.1) and **Transfer_Size** (6.4.2.1.7) values in the **Standard_Order_Process** element. These values are displayed in the OnlineData view of the NR-GIS Data Store. **Transfer_Size** should be in megabytes without the 'Mb' unit notation.

For raster data on CD sent to the NPS Technical Information Center, populate the following elements as shown below.

Distributor.Contact_Organization: NPS, Denver Service Center, Micrographic Imaging Services and Technical Information Center
Distributor.Contact_Position: TIC Customer Service
Resource_Description: Regional Alpha Code-Park Alpha Code-Image Type-CD/DVD Number (e.g., IMR-YELL-.EOO-CD1)

Metadata_Reference: FGDC Section 7

Metadata_Date (7.1)
The date that the metadata is written or completed. Like other date fields, it can be a single date, multiple dates, or a range of dates. Use a date format of YYYMMDD.

Metadata_Contact (7.4) (Recommended)
The individual or organization that is responsible for the metadata for the data set.

Metadata_Standard_Name (7.5) (Recommended)
For formal FDGC metadata, include at least this element if metadata will be posted to the NR-GIS Data Store:

Content Standard for Digital Geospatial Metadata

Metadata_Standard_Version (7.6) (Recommended)
For formal FDGC metadata, include at least this element if metadata will be posted to the NR-GIS Data Store:

FGDC-STD-001-1998

Metadata_Access_Constraints (7.8)
Restrictions and legal prerequisites for accessing the metadata (not the data). With the exception of sensitive or classified information and intellectual properties, the response is almost always 'None'. Even if a data set is exempted from public record laws (endangered species locations, personal health data, etc.) the metadata is typically fully accessible.

Metadata_Use_Constraints (7.9)
Restrictions and legal prerequisites for using the metadata (not the data) after access is granted. This may applicable for the protection of privacy or intellectual properties. Note that though a data set may be exempt from public access, the metadata seldom contains any

protected information such as the location of an endangered species nesting site.

Metadata_Extensions (7.11) (Mandatory if using the NPS Profile to create metadata)
Include the following values for records posted to the NR-GIS Data Store:

Online_Linkage (7.11.1): *http://nrdata.nps.gov/profiles/nps_profile.xml*
Profile_Name (7.11.2): *NPS Metadata Profile*

Creating Biological Data Profile Metadata

Tips for Creating Biological Data Profile Metadata
Metadata in Biological Data Profile format is recommended to document data on natural resource studies or inventories. The Biological Data Profile (also called the NBII Profile) contains metadata elements for taxa, sampling methodologies and analytical tools. For details on the Biological Data Profile, see http://www.nbii.gov/datainfo/metadata/standards/ .

The NPS Metadata Tools and Editor application (http://science.nature.nps.gov/nrgis/tools/editor.cfm) allows editing of Biological Profile metadata. See the application's help documentation and the Biological Profile Guide on the Editor web page for more details.

Few other tools exist to create Biological Data Profile metadata. SMMS© (Spatial Metadata Management System) software can author Biological Data Profile metadata. For information on SMMS, see http://imgs.intergraph.com/smms/ . The NPS Metadata Tools and Editor currently in development will allow import of taxonomy elements and the creation and editing of Biological Data Profile metadata.

Although not recommended, taxonomy information for Biological Data Profile metadata can be generated 'by hand' using a text editor. The Integrated Taxonomic Information System (ITIS) has a search and export tool called 'Compare Taxonomy/Nomenclature' that generates taxon elements (<taxoncl>) in SGML metadata format. These SGML files can be pasted into an XML metadata record using a text editor. Alternatively, the NPS Metadata Tools and Editor includes an Import ITIS tool that insert these <taxoncl> tags in the appropriate location in the target metadata file.

To add taxoncl elements by hand (be careful to not add extra whitespace or characters):

1) Open an XML metadata record in a text editor.
2) Insert the following between the </keywords> and <accconst> tags:
   <taxonomy></taxonomy>
3) Paste in the taxon elements from the ITIS SGML export between <taxonomy> and </taxonomy>
4)

For details on the ITIS tool, see http://www.itis.usda.gov/taxmatch_ftp.html .

Posting Geodatabase Metadata

In a geodatabase, metadata is stored as XML in an OLE or Long Raw/Character Large Object (CLOB) field, depending on the type of geodatabase and its underlying RDBMS.

It is up to the data steward to decide whether they wish to have records for the geodatabase and its components (feature classes, tables, etc) or just a record for the geodatabase itself.

The XML metadata cannot be automatically extracted from a geodatabase file upon upload. Therefore, the following process must be used to post geodatabase metadata to the NR-GIS Data Store.

- Open the metadata record for the desired geodatabase object in ArcCatalog.
- OPTIONAL - the upload process will prompt for this: If uploading the *.mdb for the geodatabase, edit the Distribution Information - Standard Order Process - Digital Form - Online Transfer - Network Resource Name to match the target path on the NR-GIS Data

Store.
- Export the metadata record as plain XML using the ArcCatalog metadata export tool.
- Upload the XML file (and the zipped *.mdb if desired) to the NR-GIS Data Store.
- After the release of the Data Store, a specialized update process will need to be used to update geodatabase metadata records. This process will be included in the guidelines when available.

ISO 19115 Topic Categories from ISO/DIS 19115

Use the NPS metadata thesauri (http://science.nature.nps.gov/nrdata/docs/metastds.cfm) as a source for these ISO Topic Category Name values.

Preparing for the international metadata standard: Theme Keywords and the ISO Topic Categories
The International Organization for Standards (ISO) metadata standard (ISO 19115) provides a set of Core metadata elements that must occur in every national profile/implementation. Most of these elements either map to existing CSDGM metadata elements or represent properties of the data that can be determined and populated using a data integrated metadata tool. *Topic Category* is the only mandatory element of the ISO core metadata set that requires new information that cannot be directly captured from the data. The following 19 subject headings represent the domain for the *Topic Category* element.

If your metadata creation software provides a pick list of Topic Category related terms simply select the pick list terms that apply and the software will insert the related Topic Category Name and/or Code.

If your metadata creation software does not provide a list of subject headings based upon the ISO 19115 Topic Category, include the *Topic Category Names* (as presented below) as *Theme_Keywords* and cite your related *Theme_Keyword_Thesaurus* as: 'ISO 19115 Topic Category'.
Include **all** pertinent Topic Category Names, e.g.,:
business districts = *boundaries* and *economy*
toxic release inventory = *environment* and *health*
soil fertility = *geophysical* and *farming*

Example ISO Topic Category Name (from initial ISO documentation – check NPS metadata thesauri for current list)
biota
flora and/or fauna in natural environments
e.g., flora and fauna, ecology, wetlands, habitat
boundaries
legal land descriptions
e.g., political and administrative boundaries
climatologyMeteorologyAtmosphere
processes and phenomena of the atmosphere
e.g., processes and phenomena of the atmosphere
economy
economic activities, conditions, and employment
e.g., business and economics
elevation

height above or below the earth's surface
e.g., altitude, bathymetry, dem's, slope, derived products

environment
environmental resources, protection, and conservation
e.g., natural resources, pollution, impact assessment, monitoring, land analysis

earming
rearing of animals and/or cultivation of plants
e.g., agriculture, crops, livestock

geoscientificInformation
information pertaining to the earth sciences
e.g., geology, minerals, earthquakes, landslides, volcanoes, soils, gravity, permafrost, hydrogeology, erosion

health
health, health services, human ecology, and safety
e.g., disease, illness, factors affecting health, hygiene, substance abuse

imageryBaseMapsEarthCover
base maps
e.g., land cover, topographic maps, imagery, annotations

inlandWaters
inland water features, drainage systems and characteristics
e.g., rivers, glaciers, lakes, water use plans, dams, currents, floods, water quality, hydrographic charts

Intelligence/Military
military bases, structures, activities
e.g., military bases, structures, activities

location
positional information and services
e.g., addresses, geodetic networks, control points, postal zones, place names

oceans
features and characteristics of salt water bodies
e.g., tides, tidal waves, coastal information, reefs

planningCadastre
information used for appropriate actions for future use of the land
e.g., land use maps, zoning maps, cadastral surveys, land ownership

society
characteristics of society and culture
e.g., anthropology, archaeology, religion, demographics, crime and justice

structure
man-made construction
e.g., architecture, buildings, museums, churches, factories, housing, monuments, shops, towers

transportation
means and aids for conveying persons and/or goods
e.g., roads, airports, airstrips, shipping routes, tunnels, nautical charts, vehicle and vessel locations, aeronautical charts, railways, trails

utilitiesCommunication
energy, water and waste systems, and communications infrastructure
e.g., hydroelectricity, geothermal, solar, and nuclear sources of energy, water purification and distribution, sewage collection and disposal, electrical and gas distribution, data communication, telecommunication, radio, communication networks